FORM PTO-1390 (Modified) (REV 10-95) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 1905

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): 10/030336

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/IT 99/00193	JUNE 30, 1999	MAY 14, 1999

TITLE OF INVENTION

PANEL MADE OF A HIGHLY INSULATED ELECTROTHERMAL FABRIC

APPLICANT(S) FOR DO/EO/US

Aldo STABILE

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 18 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
    A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☒ Certificate of Mailing by Express Mail
19. ☐ Other items or information:

ET473367403 US

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
10/030336	PCT/IT 99/00193	1905

20. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☐ Search Report has been prepared by the EPO or JPO	**$930.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482)	**$720.00**	
☐ No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))	**$790.00**	
☒ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO	**$1,070.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)	**$98.00**	

ENTER APPROPRIATE BASIC FEE AMOUNT =	**$1,040.00**	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	**$0.00**	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	26 - 20 =	6	x $18.00	**$108.00**	
Independent claims	1 - 3 =	0	x $84.00	**$0.00**	
Multiple Dependent Claims **(check if applicable).**			☒	**$280.00**	
TOTAL OF ABOVE CALCULATIONS =				**$1,428.00**	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable).** ☒				**$714.00**	
SUBTOTAL =				**$714.00**	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +				**$0.00**	
TOTAL NATIONAL FEE =				**$714.00**	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).** ☒				**$40.00**	
TOTAL FEES ENCLOSED =				**$754.00**	
				Amount to be: refunded	$
				charged	$

☐ A check in the amount of to cover the above fees is enclosed.

☒ Please charge my Deposit Account No. **19-4675** in the amount of **$754.00** to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **19-4675** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

STRIKER, STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON, NEW YORK 11743

SIGNATURE

MICHAEL J. STRIKER
NAME

27233
REGISTRATION NUMBER

NOVEMBER 13, 2001
DATE

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10 **Panel made of a highly insulated electrothermal fabric**

The invention concerns means for generating heat for indoor use by electric current.

There are innumerable systems and means for generating heat for this purpose by electricity.

15 These systems are based on the use of highly resistent materials which, if electric current is passed through them, reach very high temperatures at a great concentration of heat.

Such heat is nearly always much more than the environment would require and must therefore be diffused by means of complex and

20 costly devices specially made for the purpose.

The high temperatures in the heat conductors render necessary certain means of support made of special and fragile mterials such as ceramic and the like, and complex insulation and coating structures

25 These structures rapidly wear out because of the high temperatures they have to carry.

Thermal efficiency, especially if compared with other means of heating by fuels, is very low because of the high thermal difference between the electric resistances and room temperature

30 The means of heating are also bulky and, from the practical and aesthetic points of view, are difficult to combine with the furniture.

The above invention solves these problems, offering a means of electric heat that is flat, small in size and light in weight, as well as being highly insulated, as will be explained below.

Subject of the disclosure is a panel for generation and diffusion of heat having on it an electrothermal fabric, and a board of heat radiating material consisting of one or more pieces of said fabric.

Said fabric presents continuous weft wires, coated with highly insulating material and having electric contacts at their ends.

Intermediate and external layers of thermoadhesive material complete the board, covered on both sides by a mica-based material.

By connecting the electric contacts to a source of electricity, the weft wires convert electric energy into thermal energy and, through the sheets of mica-based material, radiate heat throughout the environment.

The warp threads of the pieces of fabric consist of thin parallel threads of fibre glass laid side by side.

The weft wires run continuously from a first corner on a first side of the piece of fabric, crosswise to the weft wires, first passing above a first face of the first strip, above the second face of the next strip, above the first face of the strip next again, and so on till it reaches the opposite side of the piece.

From there, after making a bend at 180°, said wire returns to the first side, closely aligned the whole previously inserted length.

From this first side, after making a another 180° bend, said wire returns to the opposite side of the piece passing above the second face of the first strip, above the first face of the next strip, above the second face of the strip next again, and so on until the whole weft weave of the piece has been completed.

This way of laying of the conductor in lengths placed side by side, passed through by electric current in the opposite direction of flow, eliminates the electric fields.

Advantageously, the highly conductive weft wire is of copper.

The electric contacts are connected at the two ends of the wire that forms the weft weave, to be used to convert electric current into thermal emergy, creating, by suitable means, a hole in the thermo-adhesive layer that covers one face of the electrothermic sheet.

This hole also passes through the insulation of the wire, a weld, or equivalent means, being put into said hole to connect said wire to an electric contact.

The hole may be produced by a grinder, by sanding or by a laser beam.

Being laser, said beam penetrates the insulating lining on the metal wire of the weft weave, but is repelled by the metal itself.

The heat radiating plate is mounted inside a protective frame.

This frame consists of two halves, of a constant section at an angle of 90°, shape and internal dimensions corresponding to the external dimensions and shape of the main parts of the panel, and being provided with means for a stable assembly.

The external dimensions of one half of the frame correspond to the internal dimensions of the other half.

The shape of' the panel is preferably square.

The external sheets of the panel are of micanite. This consists of small flakes of mica glued onto paper or cloth.

In another execution the external sheets are of micarta. The supporting material for micarta is a fabric of fibreglass which can be impregnated with polyester or epoxy resins.

A thermal sensor is placed centrally on the heat radiating plate; its contacts can be connected to the two ends of a break in the continuous wire that forms the weft.

This sensor breaks the electric circuit of the heat-radiating plate when its temperature exceeds a certain level.

In one type of execution the heat-radiating sheet comprises two

superimposed pieces of electrothermal fabric with a thermoadhesive layer in between and at the ends.

The weft wires of the two pieces of superimposed fabric can be connected in parallel or in series.

The thermoadhesive material is preferably epoxidic.

The face of the heat-radiating board that will be on view can be covered with a sheet of decorative melamine.

The invention offers evident advantages.

In view of the nature of this mineral, the mica-based sheets, such a micanite, micarta and the like, ensure maximum electrical insulation and at the same time maximum diffusion of the heat on account of their being so thin, even only a few tenths of a millimetre thick, while at the same time ensuring good mechanical strength and maximum electrical insulation.

Comprising as it does one or more pieces of thermoelectric fabric with the weft weave formed of a highly conductive wire, the heat radiating plate also ensures maximum thermal efficiency, even though it is so thin, bulk and weight as well being minimum.

The width and length of the panel can be decided as preferred, to make it useful for a variety of purposes.

The possibility of applying a decorative sheet to the surface on view, or even of decorating the face of the mica-based material, helps to make the panel suitable for any environment and for placing in any position

Characteristics and purposes of the disclosure will be made still clearer by the following examples of its execution illustrated by diagrammatically drawn figures.

Fig. 1. Panel with a heat-radiating board comprising a piece of electrothermal fabric, with surrounding frame, perspective.

Fig. 2 Cross section of the panel.

Fig. 3 An exploded view of the panel.

Fig. 4 The heat-radiating board showing its component parts, perspective.

Fig. 5 Detail of the electrothermal fabric comprised in the heat radiating board.

Fig. 6 Detail of the heat-radiating board, a cross section.

Fig. 7 As above with a laser making a blind hole.

Fig. 8 As above, with an electric contact being welded into the blind hole.

Fig. 9 Heat-radiating board with two pieces of electrothermal fabric, perspective.

Fig. 10. Cross section of the board in Figure 9.

Fig. 11. The board in Fig, 9 with a laser beam making two blind holes facing in opposite directions.

Fig. 12. As above with an electric contact being welded into the blind holes.

The square panel 10 comprises the electrothermal sheet 30 protected by the frame 20 consisting of the two halves 21 and 22.

The half-frame 21 presents a front 23 and edge 26 at 90°.

The half frame 22 presents a front 27 and edge 28, also at 90°.

The external dimensions of the half-frame 22 correspond to the internal dimensions of the other half 21 so that one fits firmly into the other to form a stable frame.

The heat-radiating board 30 is formed of a piece 40 of special fabric placed between two layers, 35 amd 36, of epoxidic thermoadhesive material and is clad on the two outer faces by pieces 31 and 32 of micanite.

A decorative sheet 33 of melamine paper is laid on the surface to remain on view.

The piece 40 of special fabric (Fig. 5) presents a warp 43-45 and a weft 50.

The warp is formed of parallel strips 43-45 laid side by side, each

strip being formed of fibreglass threads 46.

The weft 50 is formed of a continuous copper wire 51 coated with insulating paint 52.

The copper wire is inserted at one end, for example 55 (on the left low down in Fig. 5), of one side of the piece 40, crosswise to the fibreglass strips 43-45, passing alternatively on the first, on the second, on the first face, and so on, of the successive strips 43-45, emerging at the second end 56 (above, on the left, in the figure) of the opposite side of the piece, and after makng an 180°-bend 57, returns into the piece alongside the first already mentioned length of wire so returning to the first side 55.

After making another 180° bend 58, it once more returns to the fabric, at a distance from the first length corresponding substantially to the width of the strips 43-45 as far as the opposite side of the piece 40, and so on to complete the weft as indicated, for example, by the end 53 of the wire.

It will therefore be seen that by joining electric contacts at any two points in the weft, obviously first removing the coating 52 on the copper wire 51, an electric circuit can be closed on the length of wire between said points so generating heat by converting electric energy into thermal energy.

Figures 6-8 show the method followed to do this.

The holes 65, 66 are made by the laser beam 60 on the surface of the thermoadhesive layer 36. Said beam perforates the thermo-adhesive layer 36 and the coating 52 on the copper wire 51.

The electric contacts 75, 76 can therefore be connected at the two ends of the length of copper wire between the two holes, by welds 70, 71 made in the holes 65, 66.

Said contacts 75, 76 are connected to the electric wires 15, 16 that bring in mains electricity through the cable 17 and plug 18.

Figure 9 shows a heat-radiating board 80 comprising two pieces 40,

90 of special fabric with an intermediate layer 81 and two outer layers 82, 83 of epoxidic thermoadhesive material.

The board is clad on its two surfaces by pieces of micanite 31, 32.

Figures 9-12 show how mains electricity can be used to feed both the wefts 50 and 91 of copper wire in the pieces of fabric 40 and 90 by connecting the wires 15, 16 in the cable 17 to contacts 108, 109. These contacts are fixed to said wefts 50 and 91 by welds 106, 107 (Figures 9 and 12) made inside the pairs of holes 95 and 97 in the two faces 85 and 86 of the plate 80 by laser beams 100 and 101 at the ends of said wefts 50 and 91.

By making further holes 96 and 98 (Figure 9) at the other ends of wefts 50, 91, and creating an electric bridge 105 to connect said ends by welds 102 and 103 made in said holes, wefts 50 and 91 become electrically connected in series.

Figure 9 shows, practically in the centre of the upper surface of the heat-radiating board 80, a discoid sensor 120 with switch whose contacts are connected to the two separated ends of the copper warp below said upper surface.

It follows that, when the temperature of the heat-radiating board exceeds a certain pre-set value in the sensor, the switch in said sensor automatically opens thus opening the electric circuit and preventing further generation of heat until the temperature has fallen to the pre-set level.

As will be seen in Figure 3, the electric cable 17, with plug 18, passes through the two opposite cavities, respectively 12 in the half frame 21 and 13 in the half frame 22.

On completing assembly, the panel appears as in Figure 1.

When the plug 18 is plugged in to an electric socket, the copper weft wires 50 and 91 in the pieces ot thermoelectric fabric 40 and 80, receive current and heat up to a moderate temperature of about 100°C, the heat so generated, on passing through the micanite, is

radiated outwards from the panel to the environment as shown by the arrrows 11.

The surface of the panel on view shows the decorative sheet of melamine 33.

Micanite is well known to be an insulating material consisting of a stiff or flexible sheet made from flakes of mica, of muscovite in particular.

To give it greater mechanical strength, micanite sheets may be made with the mica flakes glued onto paper or cloth. As an alternative, micarta may be used, this consisting of tiny flakes of pure mica mixed to form a paste without glue, then compressed and felted.

Micarta may be given a cloth or glass base or be impregnated with polyester and epoxy resins.

As the case may require, the sheets of micanite shown in the figures can therefore be replaced by sheets of micarta and the like.

CLAIMS

1. Panel (10)made with electrothermal fabric (40, 90) for generating and diffusing heat,

characterized in that it consists of a heat-radiating board (30, 80) comprising one or more pieces of electrothermal fabric (40, 90), with a weft weave (50, 91) of continuous highly conductive wire (51) small in diameter and of considerable length, coated with insulating material (52) and having ends provided with electric contacts (75, 76, 105, 108, 109), said board (30, 80) being completed by intermediate (81) and external (35, 36, 82, 83) layers of thermoadhesive material and covered on both surfaces by mica-based material (31, 32) so that on connecting the contacts (75, 76, 105, 108, 109) to a source of electric current, the wire (51) forming the weft (50, 91), converts the electric energy into thermal energy and diffuses heat into the environment by radiation through the mica-based material (31, 32).

2. Panel (10)made with electrothermal fabric (40, 90) for generating and diffusing heat, as in claim 1,

characterized in that the warp weave (43-45) of the pieces of fabric (40, 90) consists of parallel strips, laid side by side, formed of thin threads (46) of fibreglass.

3. Panel (10)made with electrothermal fabric (40, 90) for generating and diffusing heat, as in claims 1 and 2,

characterized in that the wire (51) constituting the weft (50, 91) extends continuously from a first corner on a first side (55) of the piece (40, 90) of fabric, crosswise to the warp strips (43-45) passing alternatively over a first face of the first strip (43), over the second face of the next strip (44), over the first face of the strip next again and so on to reach the opposite side (56) of the piece (40, 90) and from there, after makng a bend (57) at 180°, said wire (51) returns towards the first side (55) closely aligned along the whole of the

previously inserted length and, from this first side (55) said wire (51) makes a bend (58) at 180° and returns towards the opposite side (56) of the piece (40, 90) passing over the second face of the first strip (43), over the first face of the next strip (44), over the second face of the strip next again and so on, to complete the whole weft (50, 91) of the piece (40, 90), the effect of aligning the lengths of conducting wire (51), through which electric current passes in the opposite direction of flow, being to elimnate electric fields.

4. Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,

characterized in that the highly conductive wire (51) of the weft weave (50) is of copper.

5. Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,

characterized in that the electric contacts (75, 76, 105, 108, 109) are joined at the two ends of the wire (51) that makes the weft (50, 91) and that are to be used for transforming electric current into thermal energy, a hole (65-66, 95-98) being made by suitable means (60, 100, 101) in the thermoadhesive layer (36, 82, 83) which covers one or both surfaces of the electrothermal board (30, 80), said hole (65,66, 95-98) also comprising the insulating coating (52) on the wire (51), a weld (70, 71, 102, 103, 106, 107) or equivalent means being made in said hole (65-66, 95-98) to connect said wire (51) to an electric contact (75, 76, 105, 108, 109).

6. Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 5,

characterized in that the hole (65-66, 95-98) is made by a grinder.

7. Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 5,

characterized in that the hole (65,66, 95-98) is made by sanding.

8. Panel (10) made with electrothermal fabric (40,90) for generating

and diffusing heat, as in claim 5,

characterized in that the hole (65,66, 95-98) is made by a laser beam (60, 100,101) the nature of which causes it to penetrate the insulating coating (52) on the wire (51) forming the weft (50,91) but then be repelled by the metal of the wire (51).

9. Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,

characterized in that the heat-radiating board (30, 80) is mounted inside a protective frame (20).

10. Panel (10)made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 9,

characterized in that the frame (20) is made of two opposing halves (21,22) of a constant section in accordance with an angle of 90°, having internal shapes and dimensions corresponding to the external shapes and dimensions of the internal parts (30) of the panel (10) and being provided with means for stable assembly.

11. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 9,

characterized in that the external dimensions of one half (22) of the frame correspond to the internal dimensions of the other half (21).

12. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,

characterized in that it is square in shape.

13. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,

characterized in that the outer sheets (31, 32) are of micanite.

14. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 13,

characterized in that the micanite (31, 32) is made from flakes of mica glued onto paper or cloth (33).

15. Panel(10) made with electrothermal fabric (40,90) for generating

and diffusing heat, as in claim 1,

characterized in that the outer sheets (31,32) are of micarta.

16. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 15,

characterized in that the micarta (31,32) is applied to a base of fibreglass.

17. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 15,

characterized in that the micarta (31, 32) is impregnated with poly-ester or expoxy resins.

18. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat as in claim 1

characterized in that a thermal sensor (120) is placed in a central position on the heat-radiating board (30, 80), it being possible to join the ends of said sensor to the two ends of an interruption in the continuous wire (51) that forms the weft weave (50, 91), said sensor (120) breaking the electric circuit of the heat-radiating board (30, 80) when its temperature rises above a certain level.

19.Panel (10) made with electrothermal fabric (40,90) for generating and diffusing heat as in claim 1,

characterized in that the wire (51) that creates the weft (50, 91) is continuous over substantially two halves of the piece of fabric, the ends of the copper wire (51), that corresponds to said two halves, being connected to a thermoelectric sensor (120) that automatically turns electric current off in that half of the piece in which the pre-set temperature level may have been exceeded.

20. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat as in claim 1,

characterized in that the heat-radiating board (80) comprises two pieces of electrothermal fabric (40, 90), superimposed and with thermoadhesive layers in between (81) and at the ends (82, 83).

21. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 20,
characterized in that the wires (51) forming the weft (50, 91) of the two superimposed pieces of fabric (40, 90) are connected in parallel.

22. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 20,
characterized in that the wires (51) forming the weft (50,91) of the two superimposed pieces of fabric (40,90) are connected in series.

23. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claims 1 and 20,
characterized in that the thermoadhesive material (35, 36, 81-83) is epoxidic.

24. Panel(10) made with electrothermal fabric (40,90) for generating and diffusing heat, as in claim 1,
characterized in that the surface of the head-radiating board (30, 80) to remain on view is covered with a sheet (33) of decorative melamine.

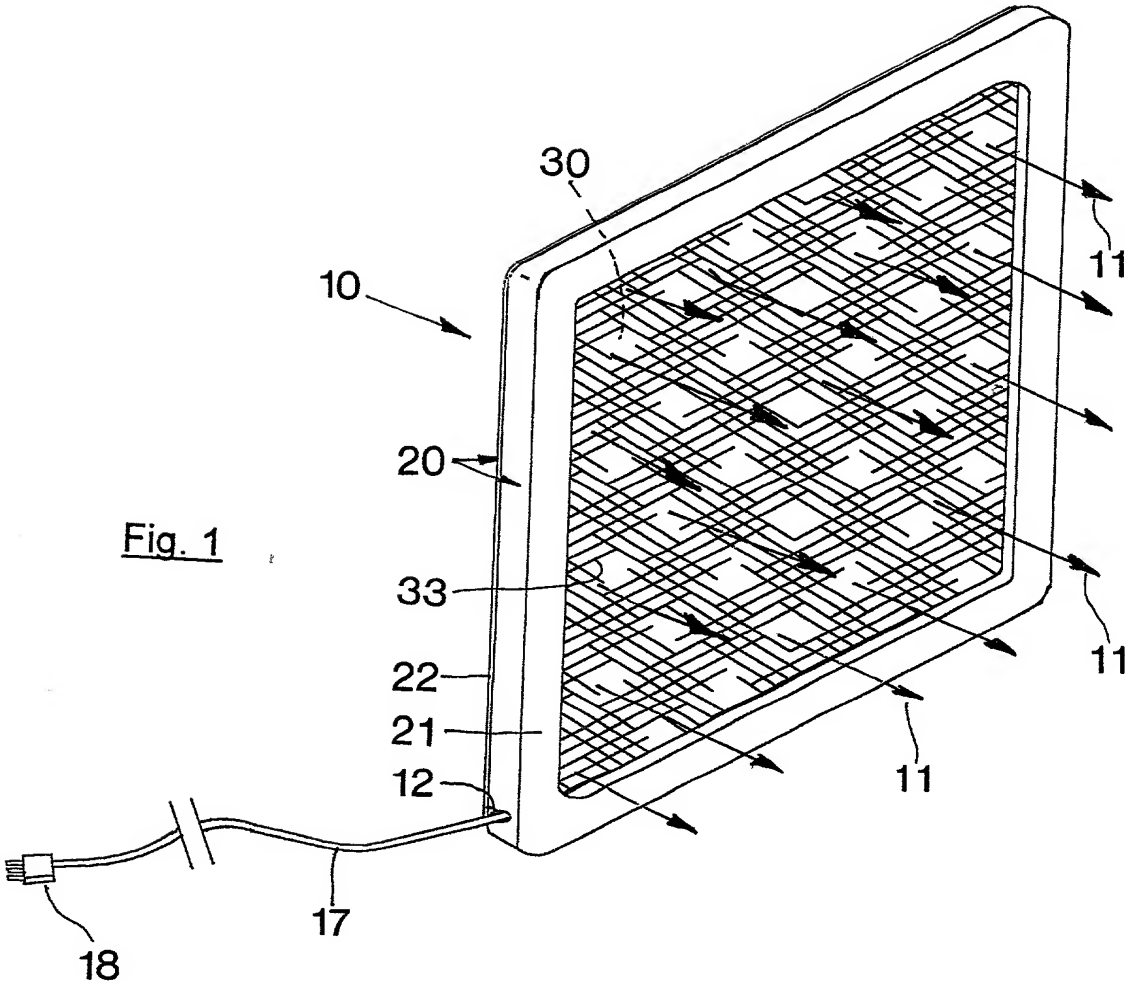

Fig. 1

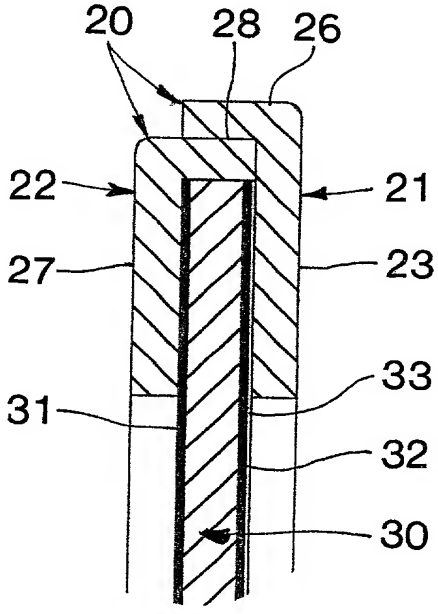

Fig. 2

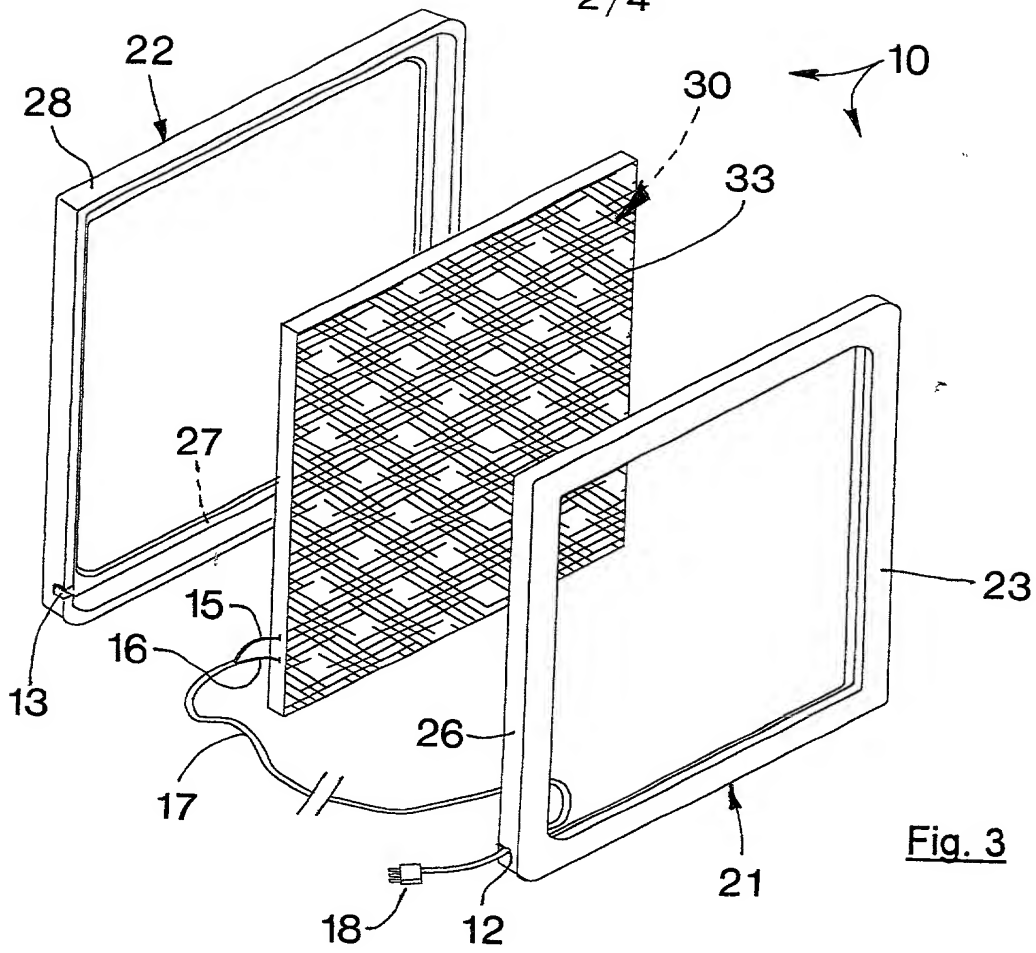
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Fig. 3

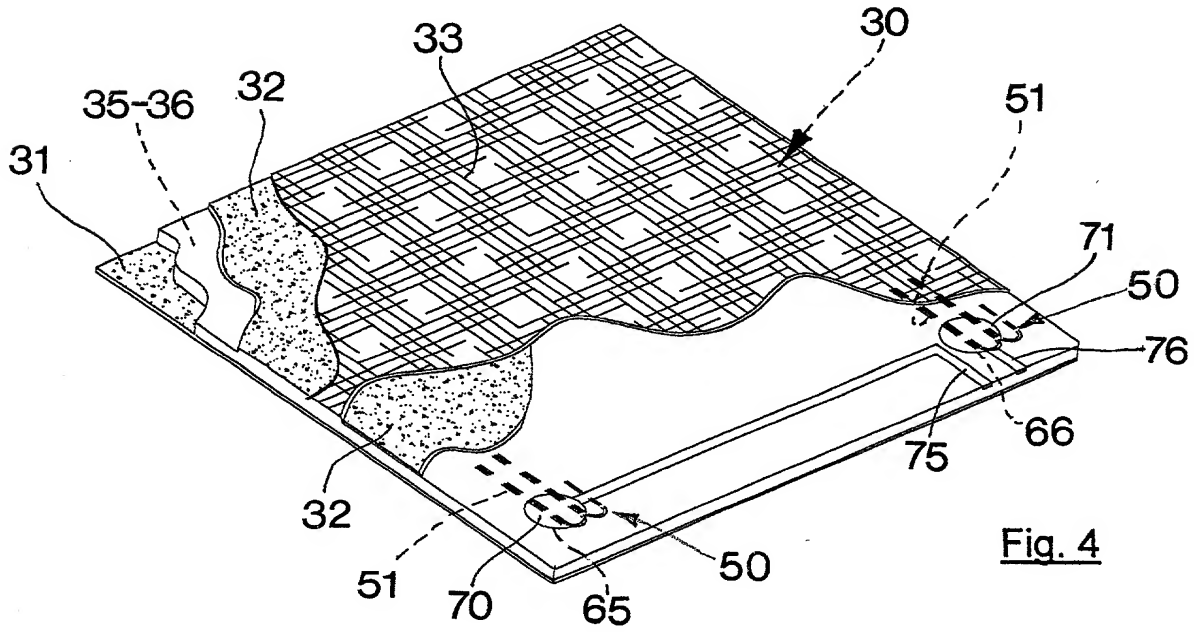
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Fig. 4

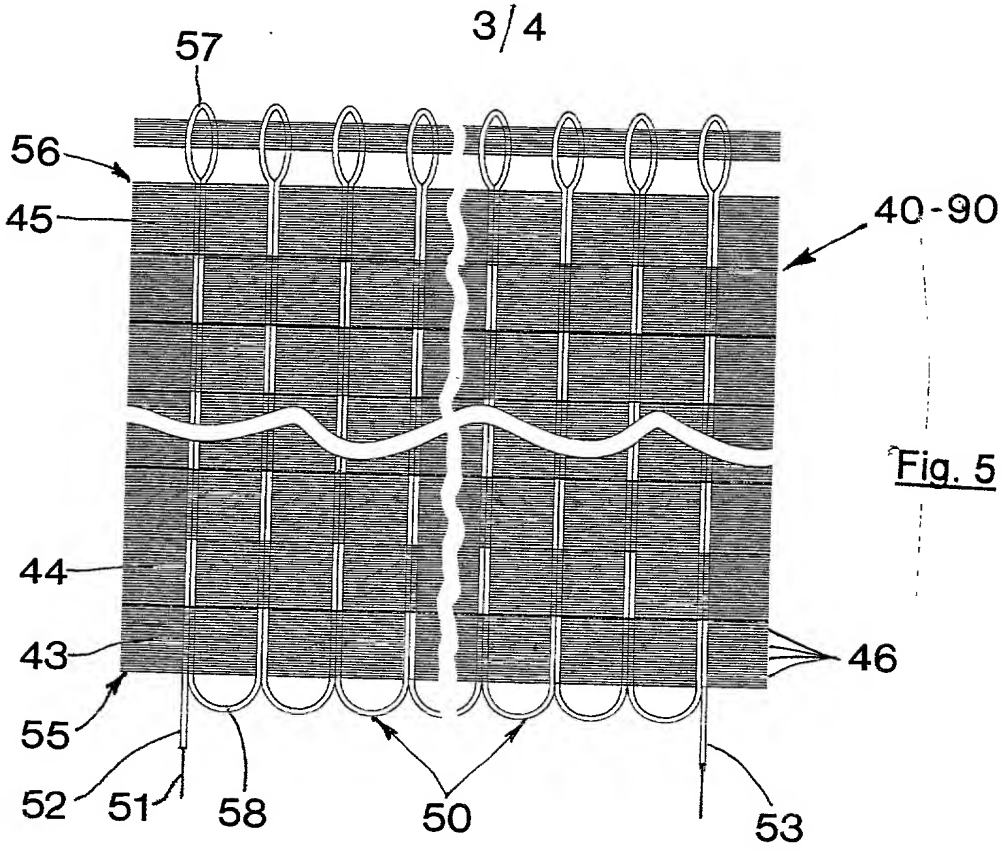

Fig. 5

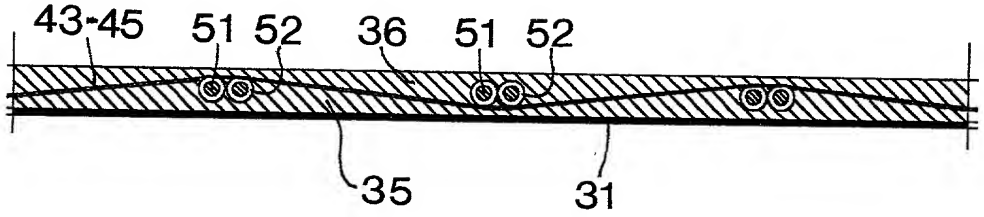

Fig. 6

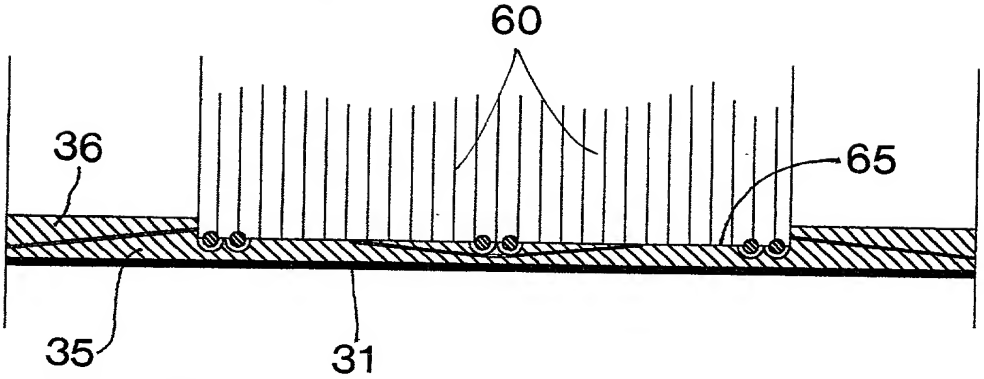

Fig. 7

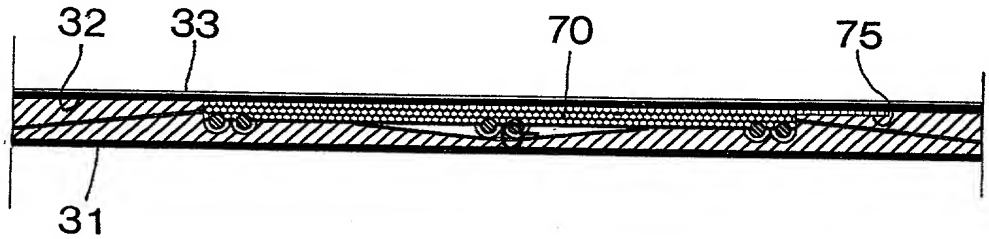

Fig. 8

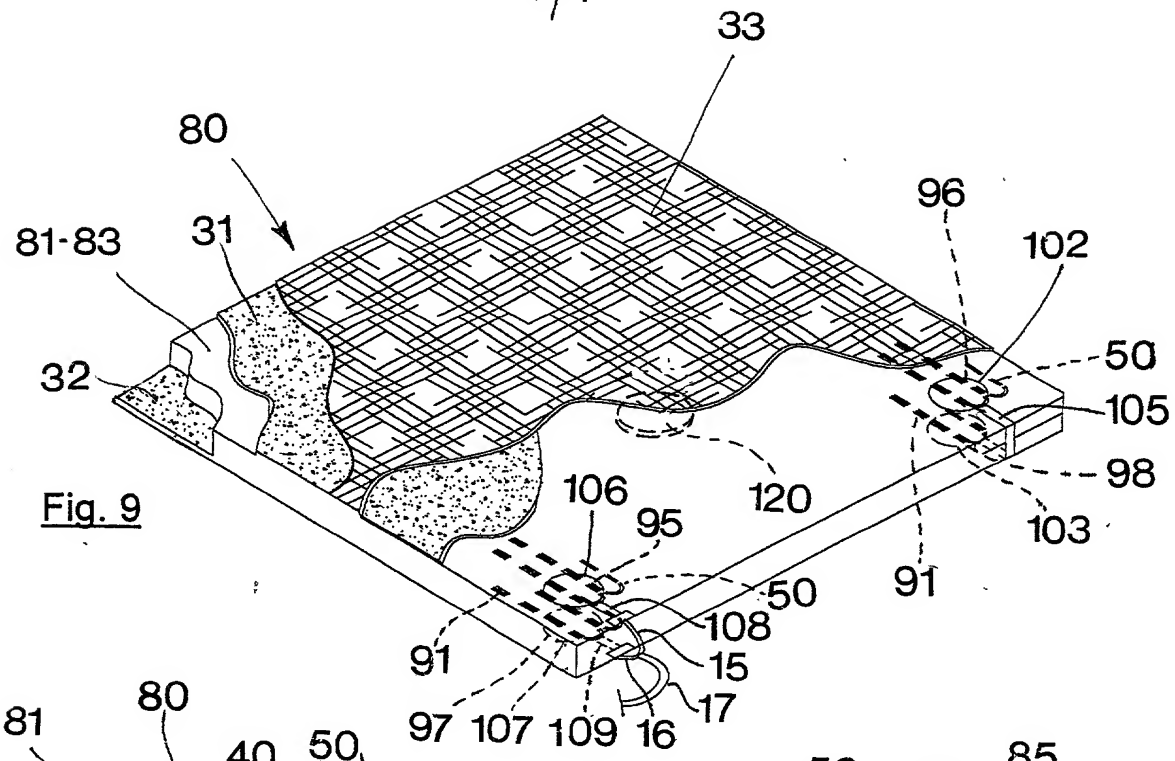

Fig. 9

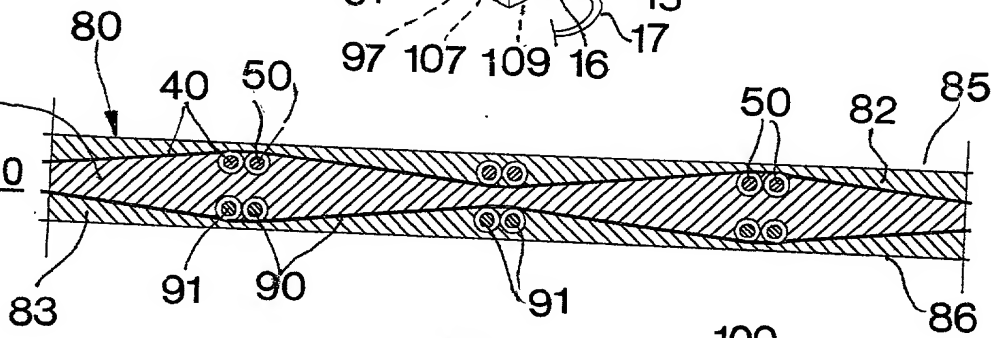

Fig. 10

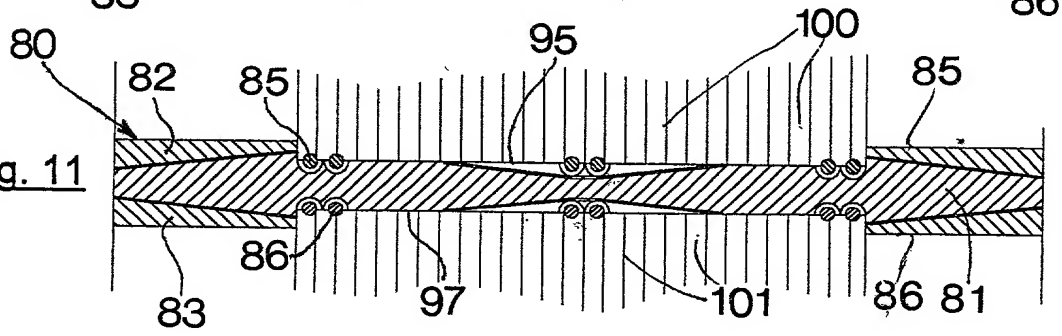

Fig. 11

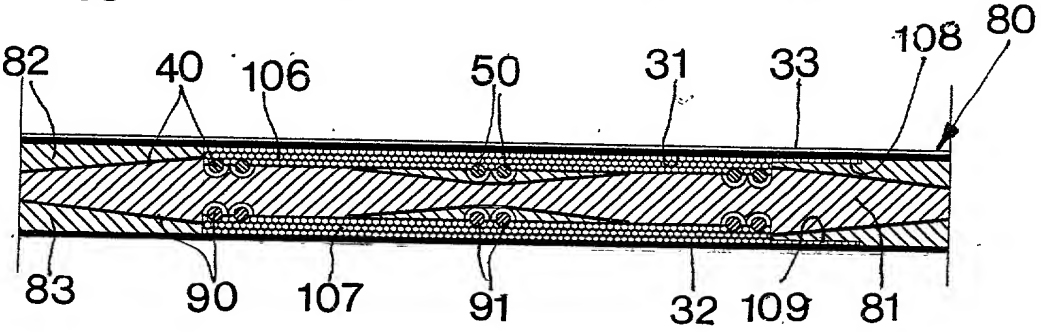

Fig. 12

DECLARATION AND POWER OF ATTORNEY FOR NATIONAL STAGE OF PCT PATENT APPLICATION

As a below-named inventor, I hereby declare that:

Aldo STABILE

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: " PANEL MADE OF A HIGHLY INSULATED ELECTROTHERMAL FABRIC"
The specification of which was filed as PCT International Application Number PCT/IT99/00193 on June 30,1999

I hereby state that I believe the named inventor or inventors in the Declaration to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior foreign application(s):			Priority claimed:	
MI 99 A 001056	ITALY	MAY 14, 1999	X	
(Number)	(Country)	(Date filed)	Yes	No
(Number)	(Country)	(Date filed)	Yes	No

As a named inventor, I hereby appoint the following attorney to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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Huntington, New York 11743
U.S.A.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Codes and that such willful false statement my jeopardize the validity of the application or any patent issued thereon.

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Signature:	Date:	Residence and Full Postal Address:
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Signature:	Date:	Residence and Full Postal Address:
Full Name of Fourth or Sole Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Fifth or Sole Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Sixth or Sole Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Seventh or Sole Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Eighth or Sole Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Ninth or Sole Inventor:	Citizenship:	

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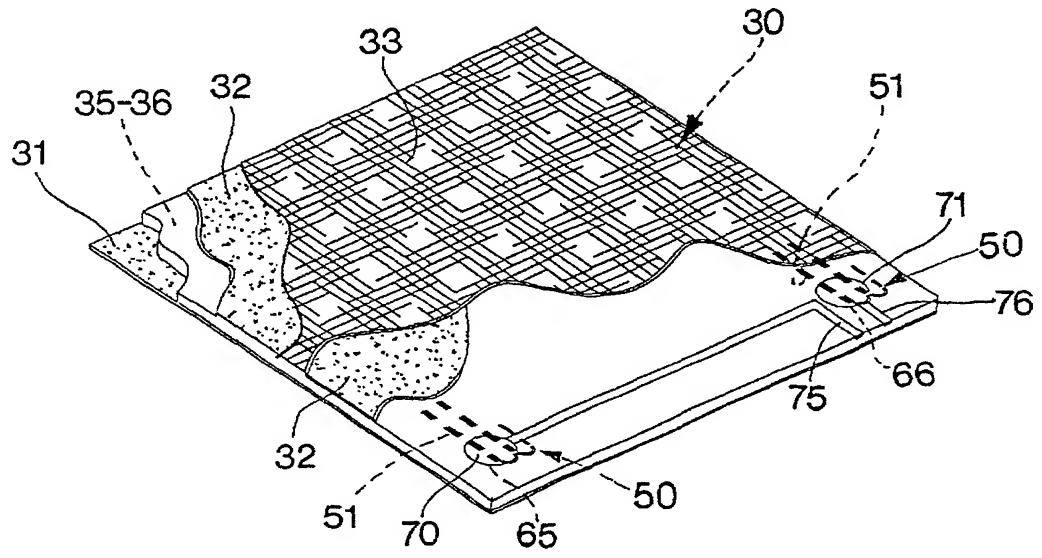

(57) Abstract

Panel (10) for generating and diffusing heat obtained from a heat–radiating board (30) comprising one or more pieces of electrothermal fabric with strips of fibreglass laid side by side to form the warp, the weft (50) consisting of a continuous copper wire (51), small in diameter and of considerable length, coated with insulating material, that extends serpentinewise passing alternatively above and below the strips of fibreglass, said board (30) being completed by intermediate and external layers (35, 36) of epoxidic thermoadhesive material and clad on both surfaces with sheets of micanite (31, 32), so that on connecting the ends of the wire (51) forming the weft (50) to a source of electric current, boring holes (65, 66) using means, that may be a laser beam, on the thermoadhesive layer (35, 36) covering the weft (50), this latter converts electric energy into thermal energy.